ACC.11
60th Annual Scientific Session & Expo

E87
JACC April 5, 2011
Volume 57, Issue 14

CARDIAC ARRHYTHMIAS

ATRIAL CONDUCTION SLOWS IMMEDIATELY PRIOR TO HUMAN ATRIAL FIBRILLATION INITIATION

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Clinical Electrophysiology -- AF Mechanisms
Abstract Category: 26. Clinical Electrophysiology–Supraventricular Arrhythmias
Session-Poster Board Number: 1088-404

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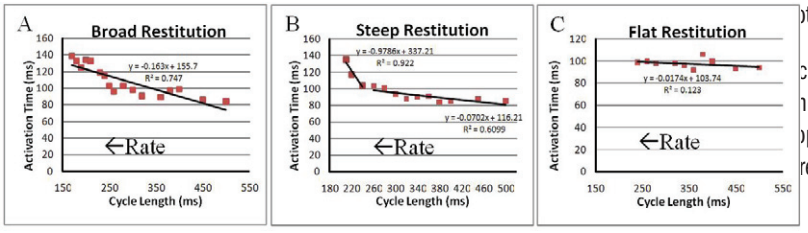
Background: Human atrial fibrillation (AF) may initiate when premature beats or tachycardias interact with 'substrates', yet these are ill-defined. Slow conduction enables reentry and is a potential substrate, yet conduction in sinus rhythm may not be relevant to AF initiation at fast rates. We hypothesized that bi-atrial conduction slowing during progressively faster pulmonary vein (PV) pacing may explain transitions to human AF.

Methods: In 23 AF patients (LA size 43±4 mm; n=12 paroxysmal) and 2 controls (no AF) at electrophysiology study, incremental PV pacing was



…oth atria.

…c AT prolongation ($p<0.05$). Broad restitution …n AT prolongation at threshold rate, fig B) arose …op AF. AT prolonged most in persistent AF, then …re AF initiated and elsewhere.

Conclusions: Human AF initiation was preceded by dynamic conduction slowing with broad or steep restitution patterns, while patients without AF had flat restitution. Conduction restitution may reflect functional as well as structural substrates for AF initiation.